

OPERATING SUMMARY

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ENVIRONMENT

WINCHESTER

1973

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WINCHESTER

WATER SUPPLY SYSTEM

and

WATER POLLUTION CONTROL PLANT

MINISTRY OF THE ENVIRONMENT

1973 ANNUAL OPERATING SUMMARY

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# WATER SUPPLY SYSTEM

## '73 Review

### GENERAL

This project consists of a water distribution system, three deep wells and a 150 thousand gallon elevated storage tank. The project is operated by a chief operator who is employed by the Ministry of the Environment.

The Winchester Water Treatment Works pumped 61.73 million gallons of water in 1973. The average daily flow in 1973 was 0.17 million gallons.

All repairs experienced at the project in 1973 were of a minor nature.

### EXPENDITURES

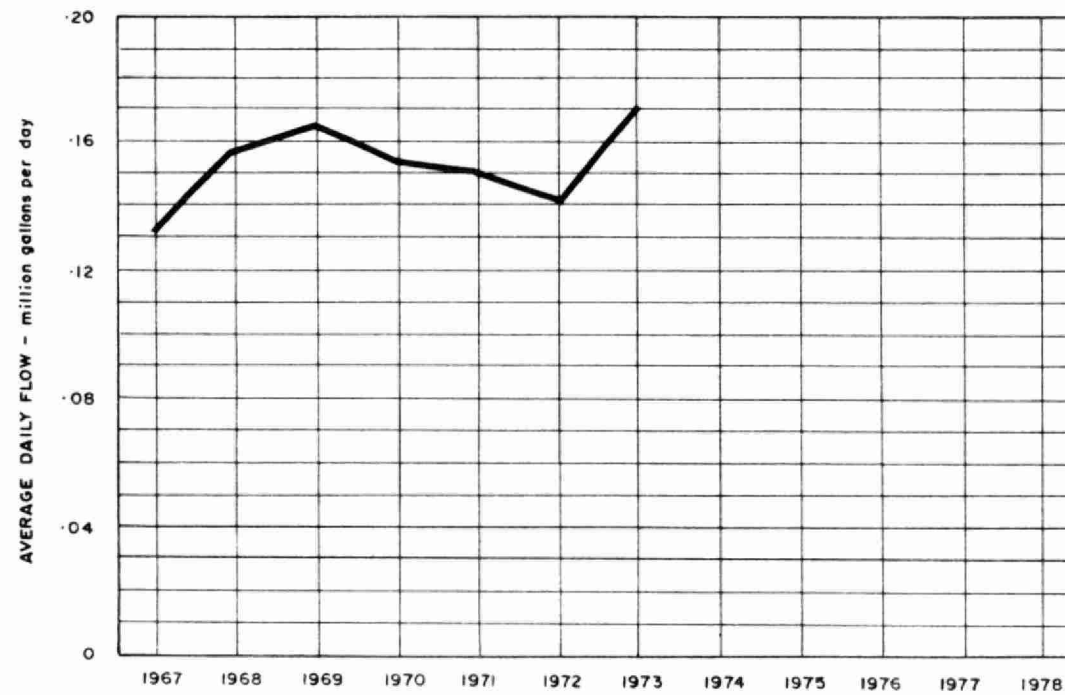
The total operating cost for the water system was \$17,903., up from \$9151. in the previous year. The cost of treating and distributing one thousand gallons of water averaged 41 cents.

### CONCLUSIONS

The operation and maintenance of the project has been very satisfactory in 1973.

The average daily flow is 47 per cent of the nominal well capacity, however during peak flow periods the maximum daily demand flow is 88 per cent of the nominal well capacity. Well testing is now under way for a future fourth well.

# PROCESS DATA FLOWS



## TREATMENT DATA

MONTH	FLOWS			BACTERIOLOGICAL RESULTS					CHEMICALS USED		
	TOTAL FLOW million gallons	AVERAGE DAY mil. gal./day	MAXIMUM DAY mil. gal.	NUMBER OF SAMPLES WITH TOTAL COLI/100ml OF:					CHLORINE		SODIUM
				RAW WATER			DISTRIBUTION SYS.		NaOCl USED gallons	RESIDUAL mg/l	SILICATE USED gallons
				0	1-4	>4	0	>0			
JAN	4.78	0.15		5	0	0	21	0	26	0.8	109
FEB	3.70	0.13		4	0	0	19	0	53	0.7	403
MAR	4.59	0.15		4	0	0	20	0	59	0.8	447
APR	4.43	0.14		8	1	0	19	0	22	0.8	0
MAY	4.82	0.15		8	0	0	14	0	22	0.6	0
JUNE	6.76	0.22		8	0	0	16	0	33	0.7	0
JULY	6.71	0.22		9	0	0	34	9	52	0.7	0
AUG	5.64	0.18		7	1	0	19	0	37	0.6	0
SEPT	4.81	0.16		7	1	0	13	0	37	0.6	0
OCT	4.94	0.16		10	0	0	21	0	34	0.6	0
NOV	4.91	0.16		11	0	0	13	0	35	0.6	0
DEC	5.64	0.16		8	0	0	14	0	32	0.5	0
TOTAL	61.73			89	3	0	223	9	442		959
AVG.		0.17		0 GEOMETRIC MEAN					1.2 PER DAY	0.7	

## WATER QUALITY

PROPERTY	RAW WATER				TREATED WATER				DESIRABLE STANDARDS
	NUMBER OF SAMPLES	AVERAGE	MAXIMUM	MINIMUM	NUMBER OF SAMPLES	AVERAGE	MAXIMUM	MINIMUM	
HARDNESS in mg/l as $\text{CaCO}_3$	6	318	416	232	2	317	342	292	80 - 100
ALKALINITY in mg/l as $\text{CaCO}_3$	6	315	420	274	2	246	255	237	30 - 100
IRON in mg/l Fe	6	0.09	0.20	0.05	2	0.18	0.30	<0.05	Less than 0.3
CHLORIDE in mg/l $\text{Cl}^-$	6	69	110	48	2	258	263	252	Less than 250
pH in pH units	6	7.5	7.9	7.5	2	7.8	7.8	7.7	7.0 - 8.5



# WATER POLLUTION CONTROL PLANT

## '73 Review

### GENERAL

This system consists of three pumping stations, (one custom and two prefabricated underground), a forcemain, a sewage collection system and two waste stabilization ponds having a total of 19 acres.

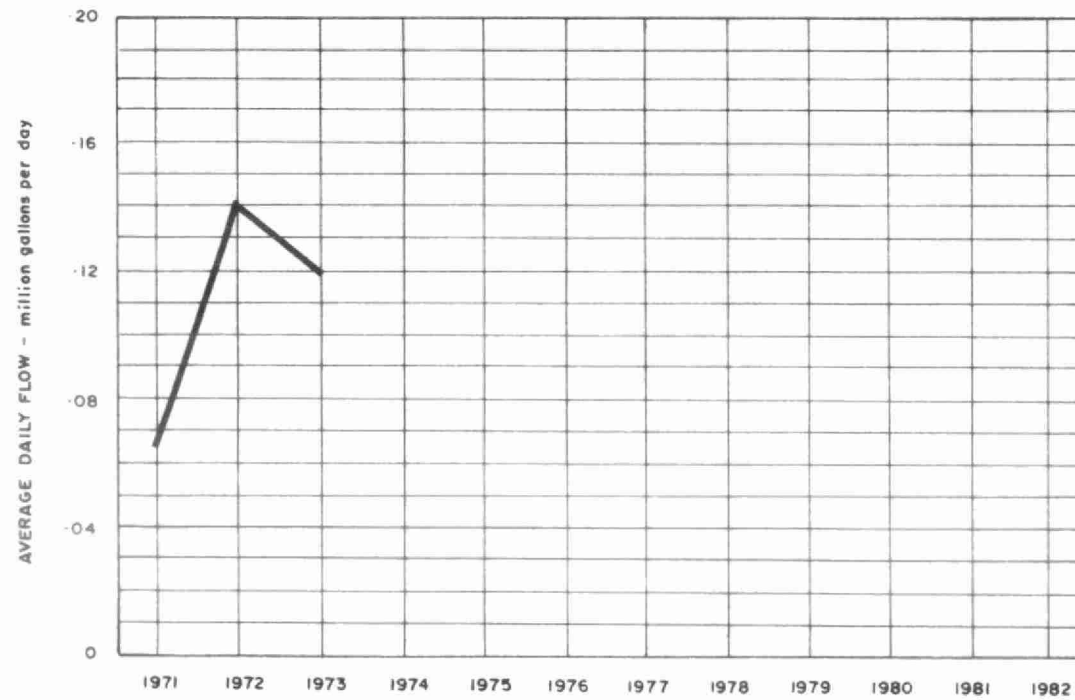
The Winchester sewage treatment works treated 43.71 million gallons of sewage in 1973. This represents an average daily flow of 0.12 million gallons.

All repairs experienced at the project in 1973 were of a minor nature.

### CONCLUSIONS

The operation and maintenance of this system has been quite satisfactory in 1973. The organic loading of the lagoon is 46 per cent of maximum and the hydraulic capacity is 82 per cent of maximum.

# PROCESS DATA FLOWS



## PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND			SUSPENDED SOLIDS			PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	LOADING	INFLUENT	EFFLUENT		INFLUENT	EFFLUENT
	million gallons	10 <sup>3</sup> gal	mgd	mg/l	mg/l	pounds/acre/day	mg/l	mg/l		mg/l P	mg/l P
JAN	3.91	0.13		150	32	11	380	40		0.9	0.5
FEB	3.13	0.11		145		10	235			10.0	
MAR	5.42	0.18		84		9	320			4.9	
APR	4.23	0.14		150		12	375			9.5	
MAY	4.16	0.13		150		12	365			8.3	
JUNE	4.01	0.13		320		25	485			9.9	
JULY	2.67	0.09		455		23	330			12.0	
AUG	2.67	0.09		215		11	205			10.0	
SEPT	2.40	0.08		175		8	315				
OCT	3.19	0.10		165		10	375				
NOV	3.25	0.11		220		14	1088			3.3	
DEC	4.67	0.15		102			385			5.0	
TOTAL	43.71	-	-	-	-	- 9	-	-	-	-	-
AVG.	3.64	0.12	MAXIMUM	205	32	13	408	40		7.8	0.5
No. of Samples	-	-	-	21	1	- -	21	1	- -	18	1

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